**Figure 1:** Transfer of a non-normal distribution to and back from a standard normal distribution. The thick black lines in the left panels are for the non-normal distribution (climatology) of the variable of interest (PDF on the top and CDF at the bottom), and the thick black lines in the right are for the standard normal. Dashed lines running across show how data values can be transferred back and forth using the equal-quantile principle. Thin black lines (labeled with "Conditional") represent the resulted posterior distribution in the Bayesian merging and how they are converted back to the variable's original climatology space.
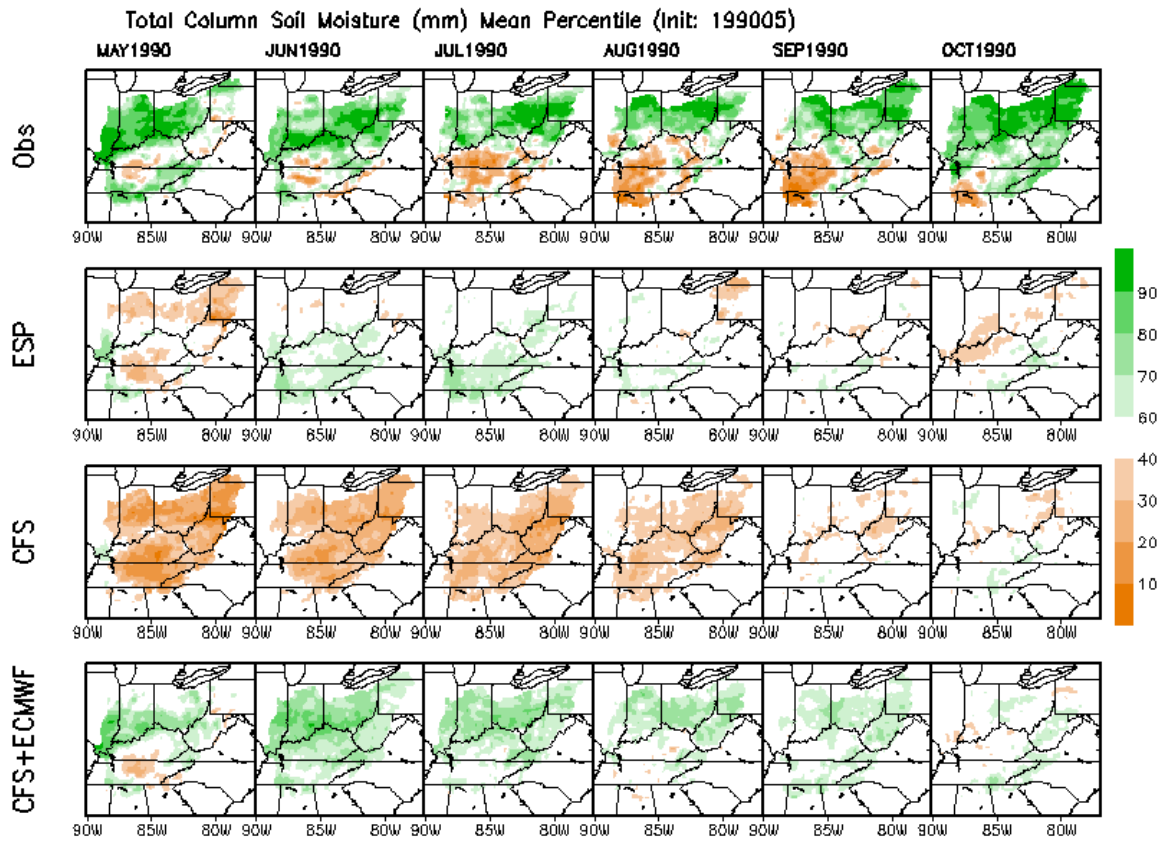
Figure 2: A six-month soil moisture forecast initiated at May 1990, over the Ohio River basin from three types of forecast 1) climatologic forecast (ESP, the second row, 2) CFS-based Bayesian forecast (CFS, the third row), and 3) multiple climate model-based Bayesian forecast (CFS+DEMETER, fourth row).
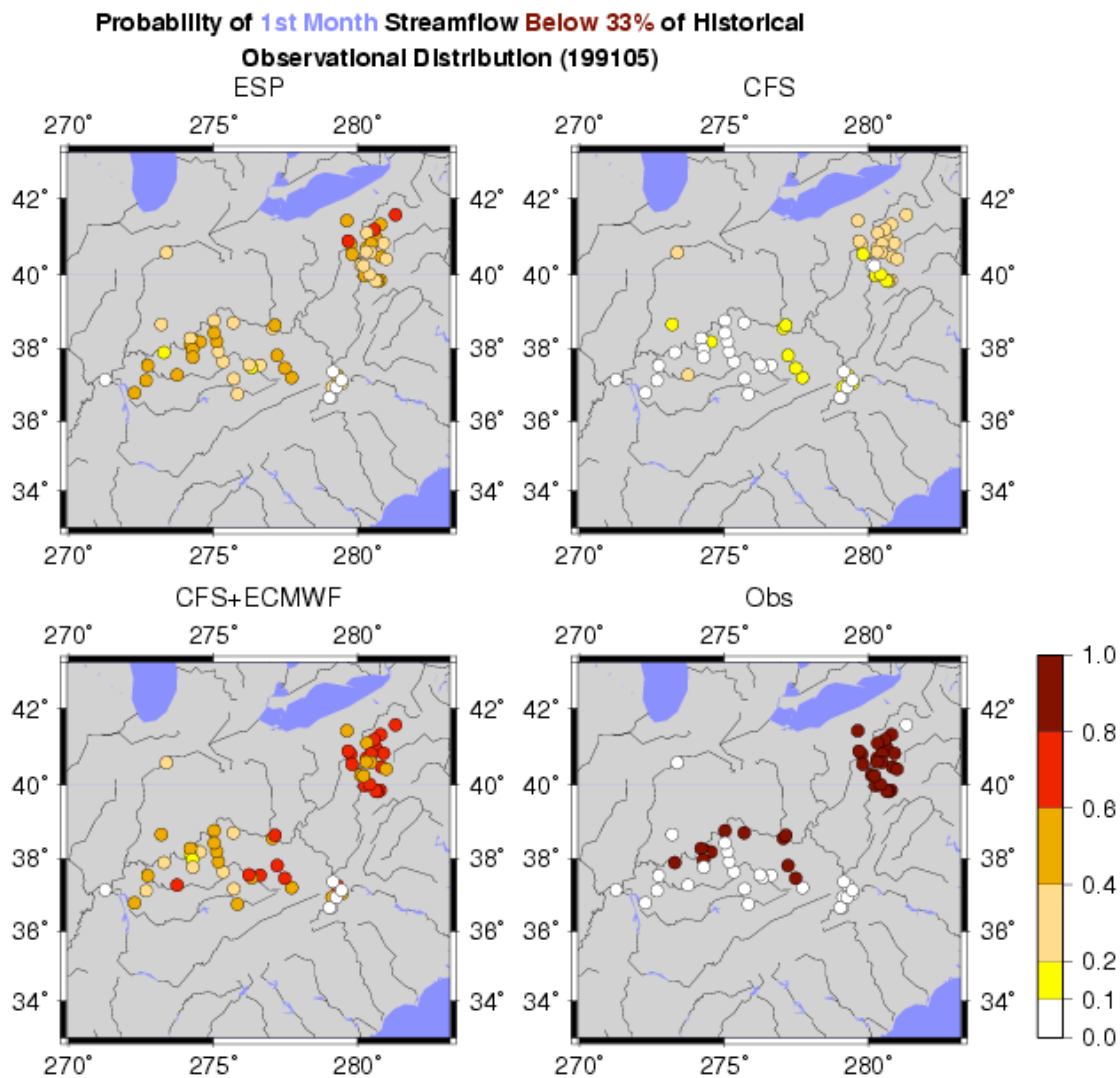
Figure 3: Probabilistic streamflow prediction products from the seasonal hydrologic forecast system over the Ohio River basin. At each gage station, the probability of an event, defined as monthly streamflow below 33% of the historical observational distribution, is estimated from the ensemble members. The probabilistic forecast is compared with actual observations expressed as 0 or 1.
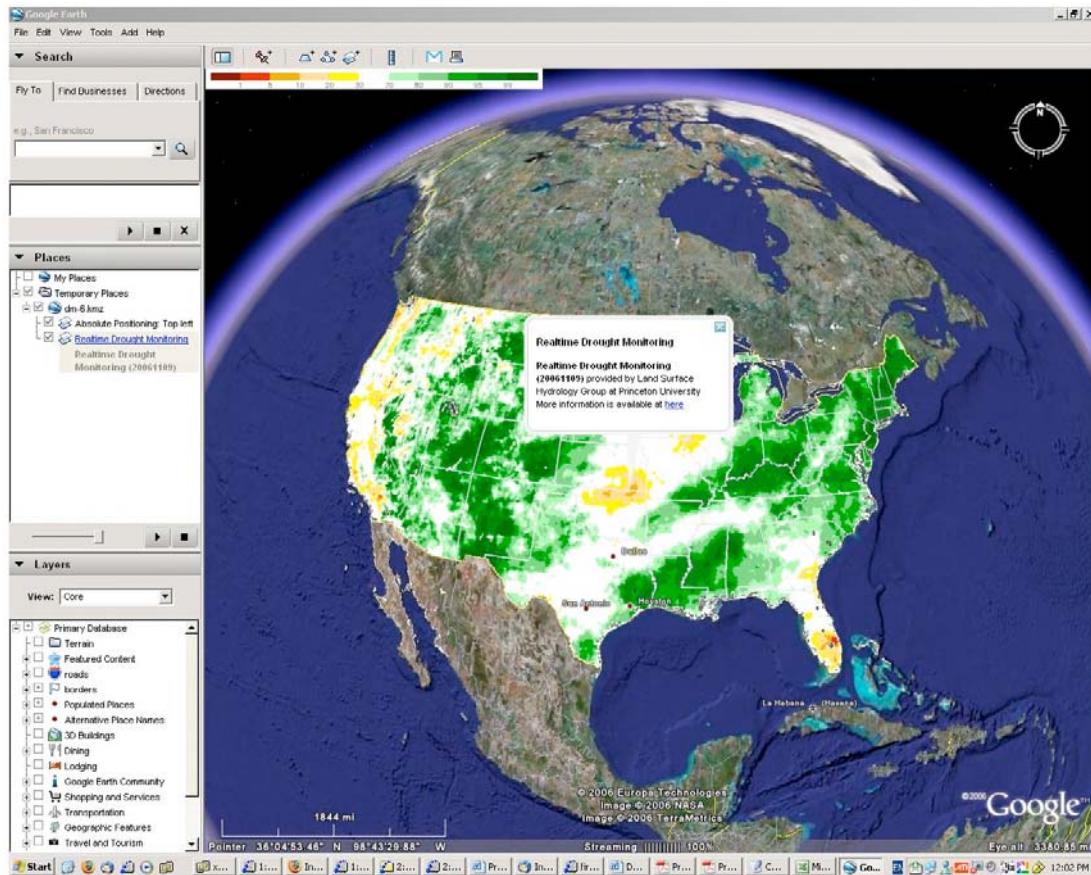
Figure 4: Real-time drought monitoring using VIC and NLDAS becomes available on Goggle Earth ™ platform.